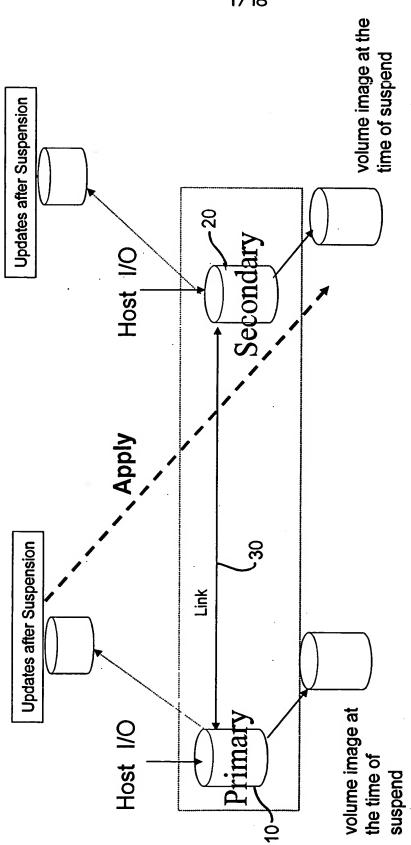
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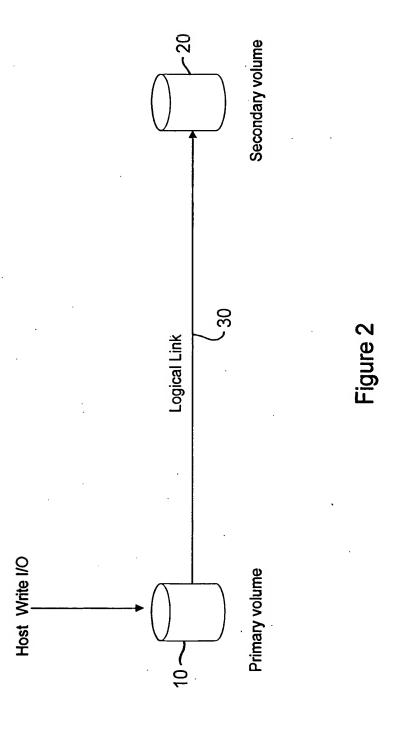


igure 1

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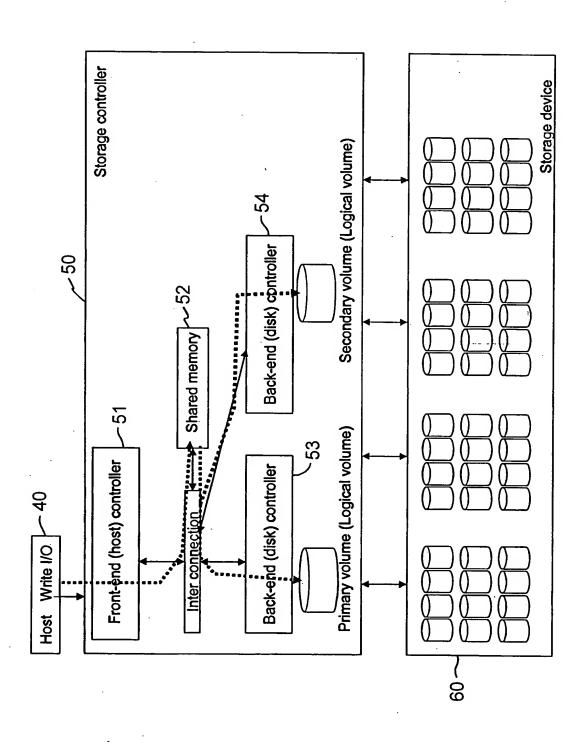
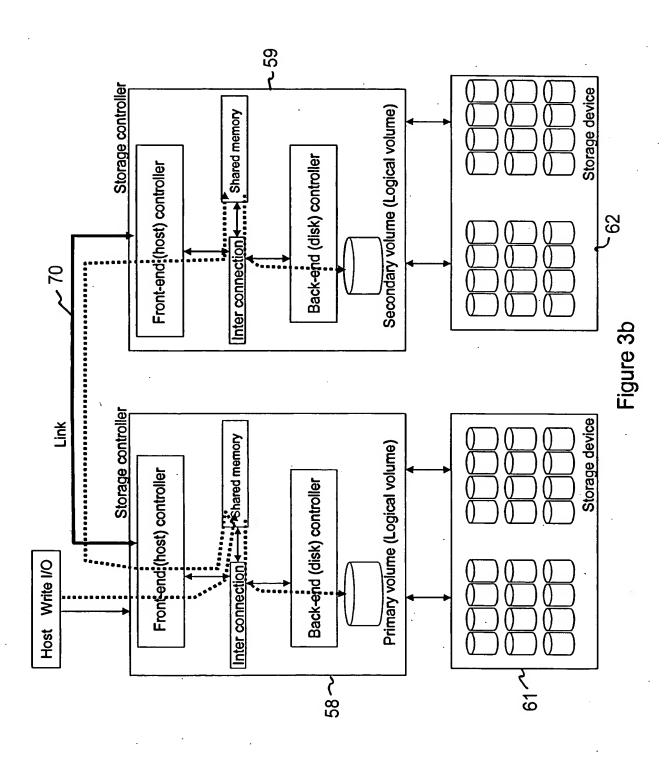


Figure 3a

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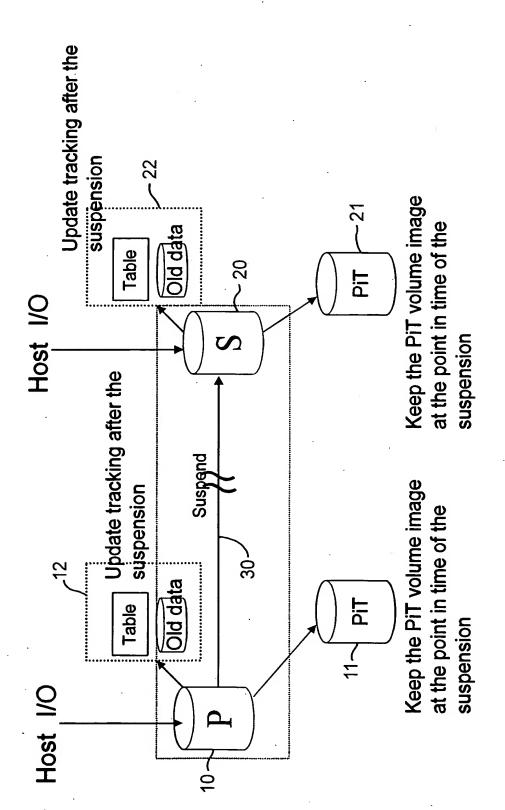


Figure 4

Sheet 6 of 18 6/18 501 receive indication of suspension of the volume replica pair. 502 Start to keep the PiT Image of both volumes. Details of the Step502 differ on each method. 503 Start to keep the all updates of the both volume during suspension. Details of the Step 503 differ on each methods. 504 Receive the synchronization request 505 Send the updates info to the volume that will be the secondary volume Start to the apply the updates to the PiT image 506 volume at the suspension time. Details of the Step 506 differ on the each combination of the methods.

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Figure 5

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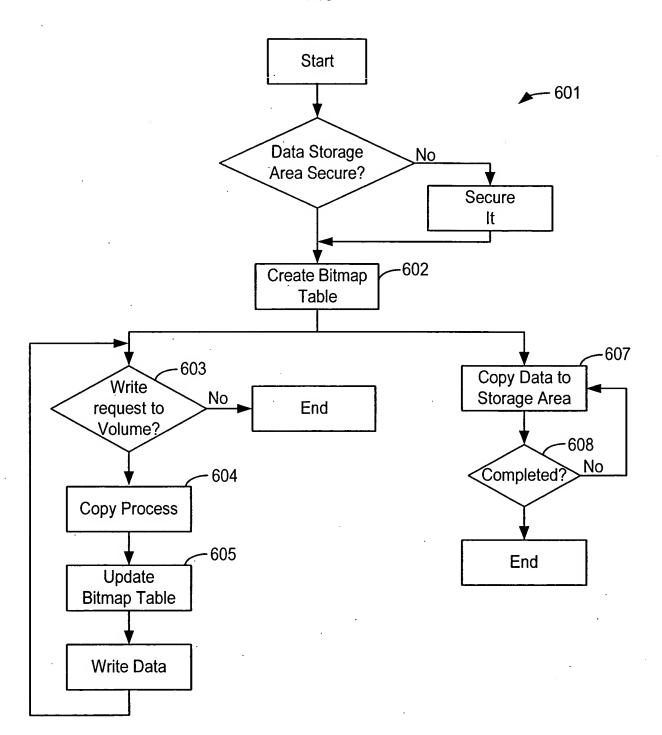
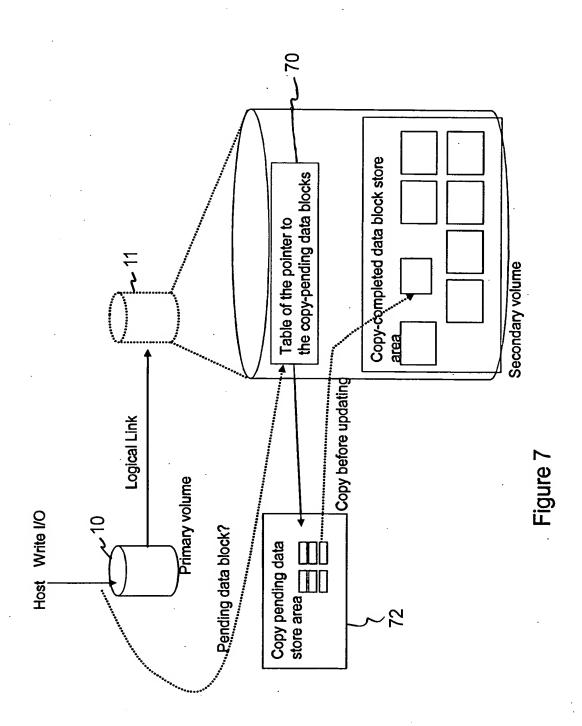


FIG. 6

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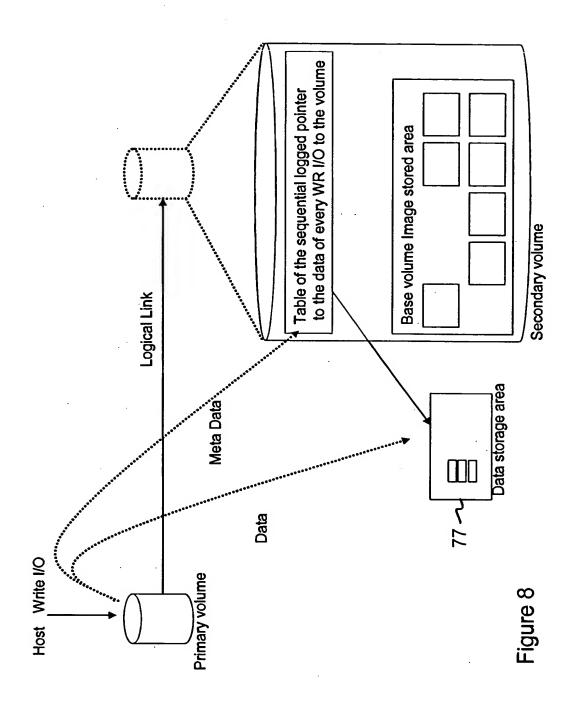
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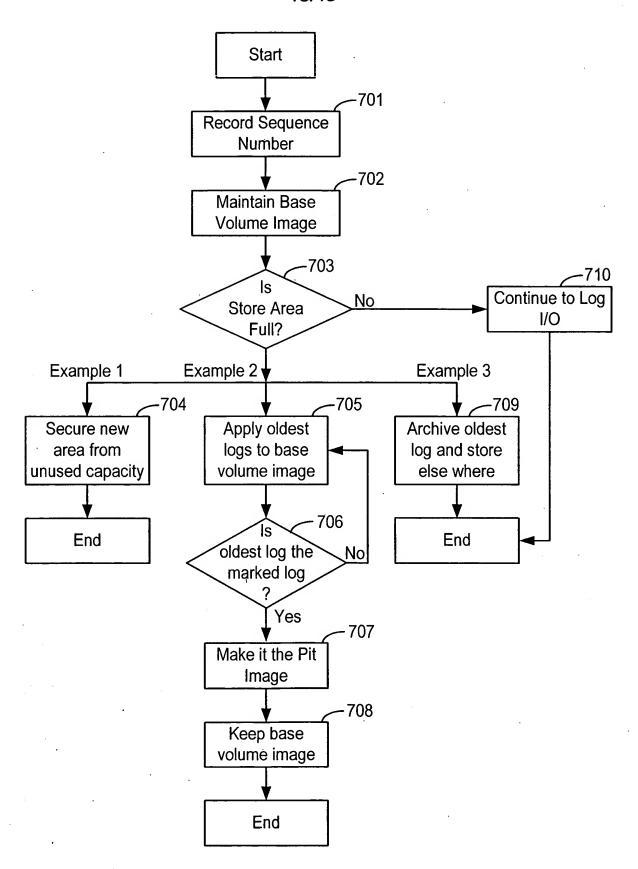


FIG. 9

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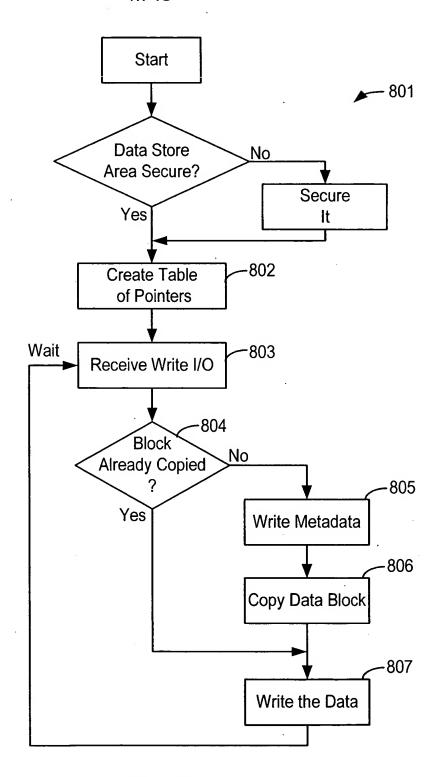


FIG. 10

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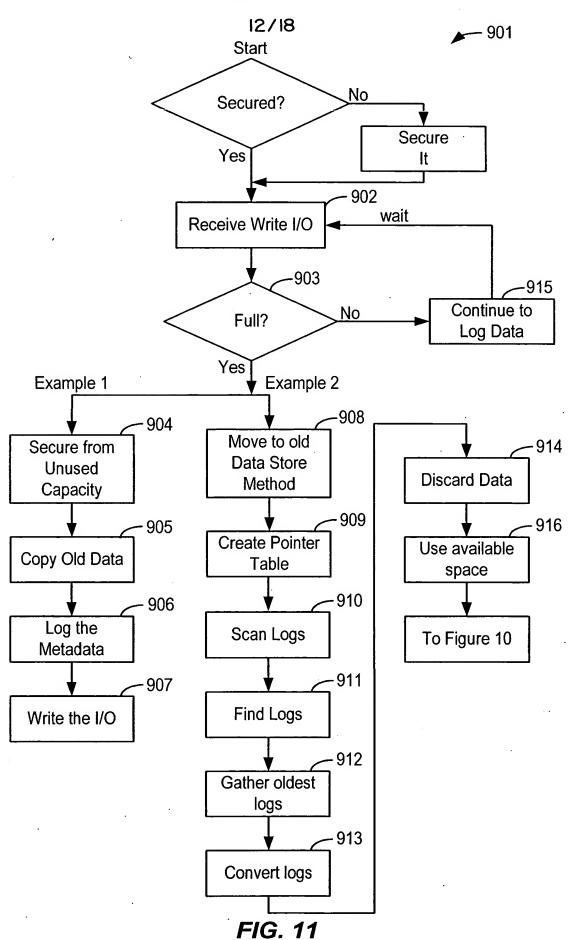
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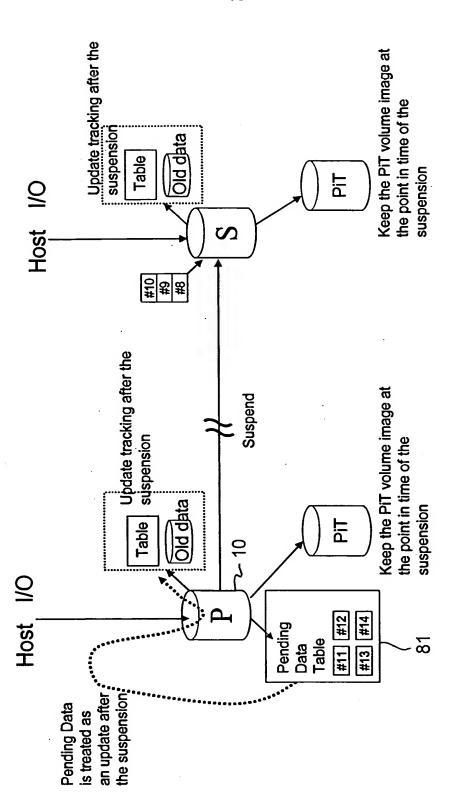


Figure 12

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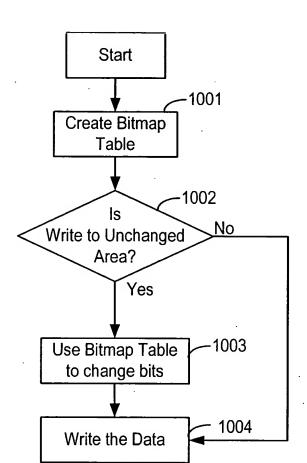


FIG. 13

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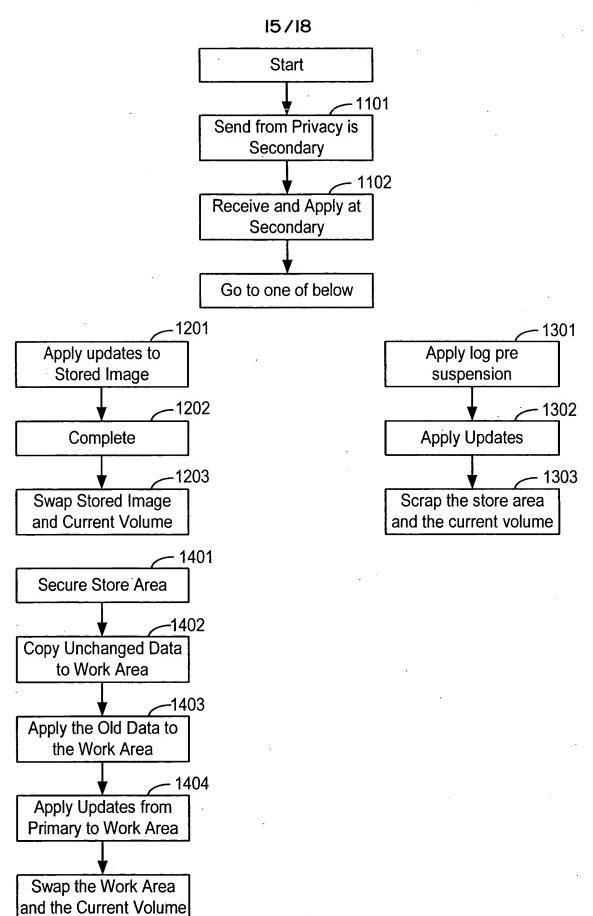


FIG. 14a

Title: Method and Apparatus for Volume Replication Management... Attorney Docket No. 16869B-077700 Sh et 16 of 18 16/18 1501 1801 Apply the Old Data to Secure Store Area Secondary Volume 1802 -1502 Copy Unchanged Data Secure Store Area to Work Area -1503 1803 Copy Unchanged Data Apply Old Data from Secondary to to Work Area Work Area 1804 -1504 Swap Work Area and **Apply Primary Updates Current Volume** to Work Area 1805 - 1505 **Apply Update Logs** Swap the Work Area from Primary to and Current Volume Secondary -1601 1901 Apply Old Data to Swap Store Area and **Current Volume** Secondary -1602 **1902 Apply Updates Logs Apply Update Logs** to Secondary from Primary to Secondary -1701 **Apply Pre-suspension** Log 1702 **Apply Update Log**

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FIG. 14b

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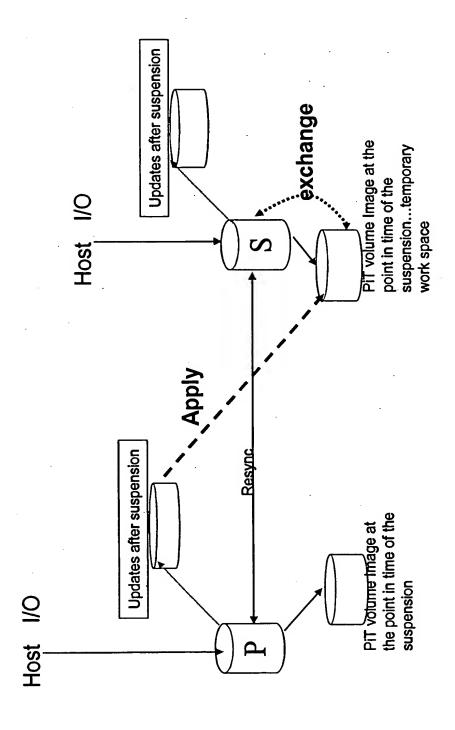


Figure 15

Titl: Method and Apparatus for Volume Replication Management...

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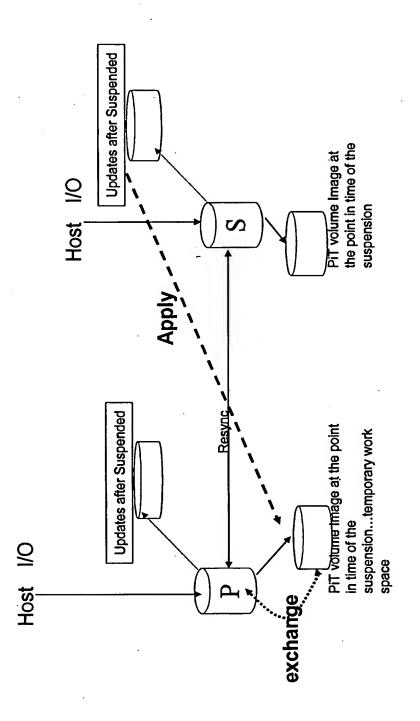


Figure 16